

Manual Therapy Techniques for the Lower Extremities

4-Corners OIG

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Knee Techniques

➤ Flexion

- Supine, Grades IV
(neutral, IR, and ER)

➤ Extension

- Supine, Grade II – III
(neutral, varus, valgus)
- Supine, Grade IV
(neutral, varus, valgus)

➤ Tibio-Femoral

- Supine AP/PA, Grade IV

➤ Patello-Femoral

- Caudal and Cephalad
- Caudal in Knee Flexion
- Medial and Lateral

➤ Tibio-Fibular

- Prone PA, Grades I – IV
- Fibular head manipulation

Knee Flexion – Supine Grade IV (neutral / IR / ER)



➤ Patient position

- Supine, hip flexed to 90° and knee allowed to fully flex

➤ Therapist position

- Proximal hand: supports the knee joint.
- Distal hand: Grasp the ankle; fingers at medial malleolus and thumb at the lateral malleolus.

➤ Mobilization technique

- Flexion: Apply graded mobilization into further flexion.
- Flexion with IR: Use distal hand to medially rotate the tibia. Apply mobilization force into flexion and abduction.
- Flexion with ER: Use distal hand to laterally rotate the tibia. Apply mobilization force into flexion and adduction.

Knee Extension – Grades II – III (neutral / varus / valgus)



➤ Patient position

- Supine, knee in extension

➤ Therapist position

- Knee and leg on the plinth with patient's heel resting on your thigh adjacent to ASIS.
- Hands placed on medial and lateral tibial or femoral condyles; forearms at right angles to leg.

➤ Mobilization technique

- Extension: Apply graded mobilization into extension by raising and lowering knee through a distance of about 5-6”.
- Extension w/ Varus: Use medial hand to apply a varus stress to the knee joint throughout range.
- Extension w/ Valgus: Use lateral hand to apply a valgus stress to the knee joint throughout range.

Knee Extension – Grades IV (neutral / varus / valgus)



- **Patient position**
 - Supine, knee in extension
- **Therapist position**
 - **Distal hand:** Grasp the patient's ankle, holding the heel a few inches above the plinth.
 - **Proximal hand:** Place heel of hand over the tibial tuberosity, fingers pointing distally.
- **Mobilization technique**
 - **Extension:** Apply small-amplitude mobilization into extension using an AP force with proximal arm.
 - **Extension w/ Varus:** Position proximal hand over medial tibial plateau to impart ext/varus force.
 - **Extension w/ Valgus:** Grip ankle with supinated forearm. Position proximal hand over lateral tibial plateau to impart ext/valgus force.

Tibio-Femoral AP / PA – Supine Grade IV



➤ Patient position

- Supine, knee flexed to about 70° with foot resting on plinth

➤ Therapist position

- Sitting on plinth with patient's foot under the thigh for stabilization.
- Thenar eminence of both hands over tibial condyles, while fingers wrap posteriorly into the popliteal fossa.

➤ Mobilization technique

- Graded anteroposterior mobilizations produced by pushing on the proximal tibia (posterior drawer test).
- Graded posteroanterior mobilizations produced by pulling on the proximal tibia (anterior drawer test).

Patello-Femoral Mobs – (Caudal and Cephalad)



Caudal



Cephalad

- **Patient position**
 - Supine with knee slightly flexed over your thigh
- **Therapist position**
 - Place one knee and leg in a kneeling position on the plinth.
 - Bottom hand (guide hand): Holds the medial and lateral patella with the thumb and index finger.
 - Top hand (mobilizing hand): Cups the inferior or superior pole of the patella into the heel of hand.
- **Mobilization technique**
 - Use different hand positions to apply graded caudal or cephalad mobilization (see insets)
 - Bottom hand can be used to decompress the PF joint (pincher motion) or add more compression during treatment.

Patello-Femoral Mobs – (Caudal with Flexion Progression)



- **Patient position**
 - Sitting on edge of plinth with knee flexed and heel supported on chair or therapist's leg
- **Therapist position**
 - Bottom hand (guide hand): Holds the medial and lateral patella with the thumb and index finger.
 - Top hand (mobilizing hand): Cups the superior pole of the patella into the heel of hand.
- **Mobilization technique**
 - Apply graded caudal mobilization with the top hand.
 - Vary amount of knee flexion for progression of technique
 - Bottom hand can be used to decompress the PF joint (pincher motion) or add more compression during treatment.

Patello-Femoral Mobs – (Medial and Lateral)



➤ Patient position

- Supine with knee slightly flexed over your thigh

➤ Therapist position

- Medial glides: Both thumb pads on lateral border of patella; fingers around medial knee.
- Lateral glides: Both index fingers on medial border of patella; thumbs around lateral knee.

➤ Mobilization technique

- Medial glides: Apply a graded medially directed mobilization by pushing on the patella with your thumbs.
- Lateral glides: Apply a graded laterally directed mobilization by pulling on the patella with your index fingers.

Tibio-Fibular PA – Prone Grade I – IV



➤ Patient position

- Prone with knee flexed about 30° and leg supported on your thigh

➤ Therapist position

- Position one knee on table to support the patient's leg.
- Distal hand: Grasps the patient's medial calf to stabilize the lower leg.
- Proximal hand: Position the heel of hand or thenar eminence over the posterior fibular head

➤ Mobilization technique

- Use your arm to apply graded mobilizations in a posteroanterior direction.
- May use both thumbs over the posterior fibular head for gentle mobilization forces (grades I – II).

Fibular Head Manipulation – Supine Grade V



- **Patient position**
 - Supine with knee flexed
- **Therapist position**
 - **Proximal hand:** Grasps the posterior proximal tibia just medial to fibular head. Move soft tissue laterally until 2nd MP joint is against posterior fibular head
 - **Distal hand:** Serves as the movement hand by grasping the distal tibia
- **Mobilization technique**
 - Rotate the tibia into ER with your movement hand and take up slack into knee flexion
 - Engage barrier and apply Grade V mobilization (HVLA thrust)